

concat-decomp^{0,22}

$\forall T:\text{Type}, ll:(T \text{ List}) \text{ List}, x:T.$

$(x \in \text{concat}(ll))$

$\Leftrightarrow$

$(\exists ll_1, ll_2:(T \text{ List}) \text{ List}, l_1, l_2:T \text{ List}.$

$\text{concat}(ll) = (\text{concat}(ll_1) @ (l_1 @ [x] @ l_2) @ \text{concat}(ll_2)) \in T \text{ List}$

$\& ll = (ll_1 @ [l_1 @ [x] @ l_2] @ ll_2))$